CHAPTER

6

FLOODPLAIN MANAGEMENT

TABLE OF CONTENTS

LIST OF FIGURES

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6.1 Introduction

Three types of floodplains are addressed in this chapter:

- Floodplains as defined and regulated under the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP);
- Floodplains for streams not regulated under the NFIP; and,
- Local (site-scale) potentially floodprone areas.

The City of Wichita and Sedgwick County have adopted floodplain ordinances that set specific requirements for the management of FEMA-regulated floodplains in each respective community. In addition, the City and County have adopted a Storm Water Management ordinance that includes special provisions for FEMA-regulated floodplains, as well as for floodplains not regulated by FEMA, and local potentially floodprone areas.

A brief overview of these requirements is presented below. The ordinances are included as appendices to Volume 1 of the Storm Water Manual, and should be consulted for the specific requirements for new developments.

6.2 FEMA/NFIP Regulated Floodplains

Floodplain management for FEMA-regulated streams is based on the requirements of the NFIP. Through the community's participation in the NFIP, flood insurance studies (FIS) are completed for the community and flood insurance rate maps (FIRMs) are generated. Based on the information contained in the FIS and on the FIRMs, FEMA authorizes the sale of flood insurance for the community.

For NFIP purposes, the "floodplain" is defined as the area inundated by the one-percent chance (100-year) flood, also called the base flood (see Figure 6-1). In Wichita and Sedgwick County floodplains must be shown on development and redevelopment plans based by mapping the base flood elevations to the most up to date topographic survey to yield accurate floodplain boundaries.

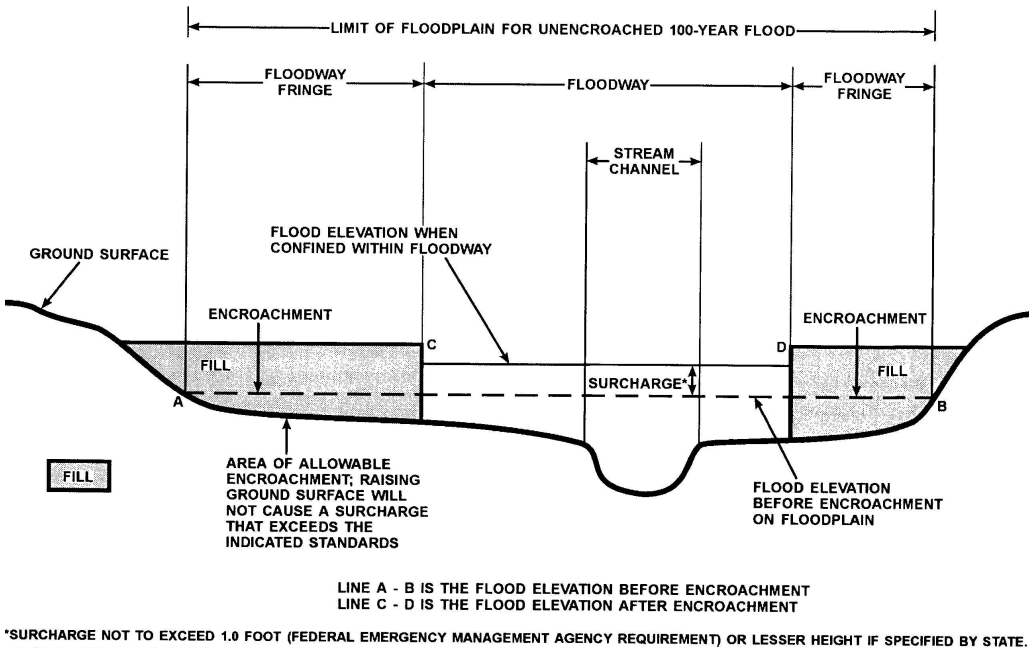

Figure 6-1 NFIP Floodplain Definitions

The “floodway” is a zone within the floodplain reserved to pass flood flows without increasing food elevations more than a specified amount (normally, 1.0 foot or less). Construction within the floodway is prohibited except under specific limited conditions. The zones between the floodway and the outer edges of the 100-year floodplain are termed the “floodway fringe”.

In general, the restrictions for floodplains as dictated by FEMA-requirements include (but are not limited to) limiting construction in the floodway, elevating structures above the 100-year flood elevations, stabilizing structures located in the floodplain, limiting the use of the floodplain for storage of certain materials, limiting the increase in flood elevations for floodway fringe encroachments and providing compensatory storage excavation when fill is placed in volume sensitive basins. All of these requirements are explained in detail within the Wichita and Sedgwick County floodplain and storm water management ordinances found in the Volume 1 appendices.

Figure 6-2 shows an example of a FEMA flood map used in the NFIP.

Penalties for non-participation in the federal program involve reduced or denial of access to federal disaster funding and home loans, higher flood insurance rates, or loss of ability to obtain any flood insurance. Information on the Kansas National Flood Insurance Program can be obtained by contacting the Kansas DWR Floodplain Management Unit.

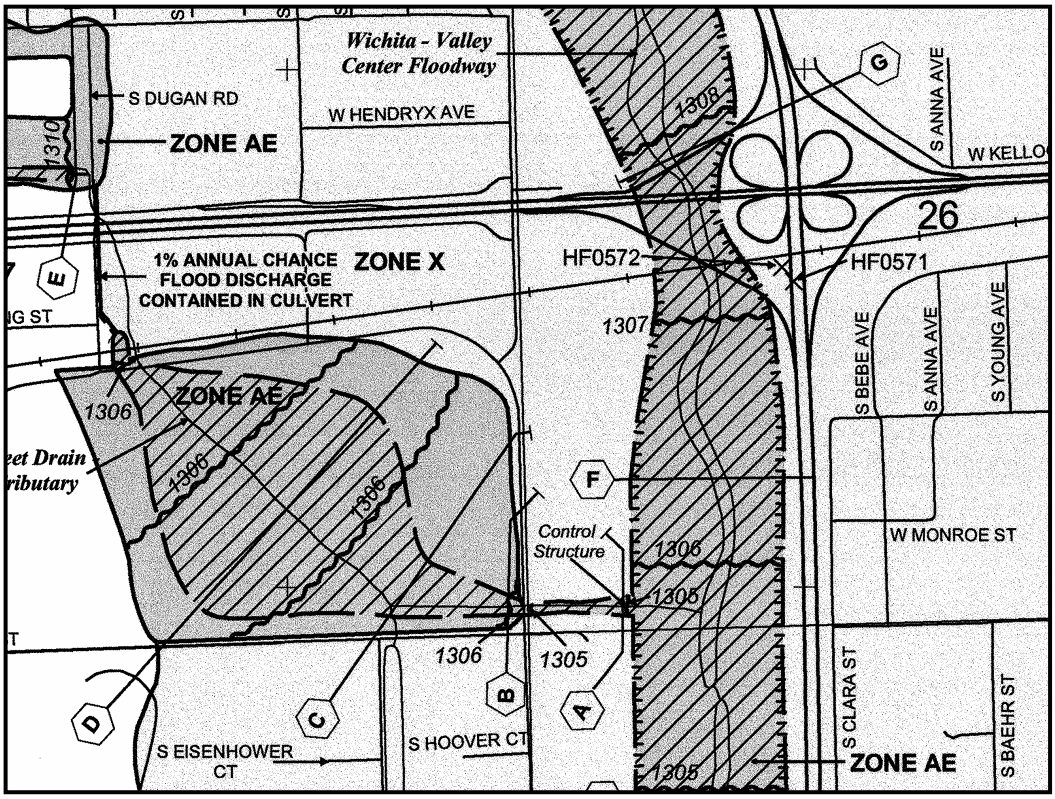

Figure 6-2 Example of a FEMA Flood Risk Map

6.3 Floodplains for Streams not Regulated by FEMA

FEMA-defined and regulated floodplains do not usually extend upstream far enough to include relatively small watersheds. However, the floodplains associated with small watersheds can be important flooding sources and are therefore further regulated by the City and County.

The previously referenced floodplain and storm water ordinances provide requirements for channels and floodplains associated with watersheds for non-FEMA regulated streams and watersheds upstream of the upstream end of FEMA-regulated zones of streams. Those requirements apply to floodplain and channel drainage areas in excess of 40 acres. In general, the requirements contained in the ordinances include (but are not limited to) prohibiting increases in flood elevations and erosive velocities, providing maintenance access to new or modified channels, providing self-cleaning velocities for new or modified channels when hydraulic conditions permit, controlling the degree to which existing or new channels may be enclosed as opposed to left open, minimum freeboard requirements for the channel banks and adjacent structures, and compensatory storage excavation to offset fill placed in the floodway fringe in volume sensitive floodplains.

Refer to the ordinances appended to Volume 1 of the Storm Water Manual for specific requirements.

6.4 Local (Site-Scale) Potential Floodprone Areas

Most site-scale conveyances (swales, ditches, inlets, gutters, and overland flow zones) are designed for peak flows smaller than those associated with the 100-year rainfall or flood event. When an event in excess of the design event occurs, out-of-bank flows flood adjacent areas. These flooded areas are essentially local floodplains.

The Storm Water Ordinance adopted by the City and County, along with the design criteria provided in Volume 2 of the Storm Water Manual, require that conveyance systems be designed to limit out-of-bank flooding as well as ensure adequate performance and stability of the conveyance facilities. In general, the requirements include (but are not limited to) provisions to avoid erosive velocities, providing maintenance access to new or modified channels, providing self-cleaning velocities for new or modified channels when hydraulic conditions permit, controlling the degree to which existing or new channels may be enclosed as opposed to left open, minimum freeboard requirements for the channel banks and adjacent structures, and flow spreads onto streets.

6.5 FEMA Resources

A list of FEMA guidance documents and other published resources can be found at the following website (http://www.fema.gov/plan/prevent/fhm/frm_docs.shtm).

The Guidelines and Specification for Flood Hazard Mapping Partners provides details on modeling requirements for all studies submitted to FEMA, or other studies that are required to be consistent with FEMA requirements. This document can be downloaded from the FEMA Library (http://www.fema.gov/library/viewRecord.do?id=2206).

To determine the current status of the floodplain in the study area the effective FIRMs and FIS reports should be consulted. These can be obtained from FEMA's Map Service Center (http://msc.fema.gov).

In order to revise an existing model the effective model must first be obtained and be used as a basis for the new study. Effective models can be purchased from FEMA's Engineering Library (http://www.fema.gov/plan/prevent/fhm/st_order.shtm).

All studies submitted to FEMA must be performed using one of the numerical models from the approved list (http://www.fema.gov/plan/prevent/fhm/en_modl.shtm). Alternative models may be approved if it meets the requirements stated in Subparagraph 65.6(a)(6) of the National Flood Insurance Program (NFIP) regulations.